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REMARKS

Claims 1-5 and 7-20 are presently under consideration in the application. Favorable reconsideration of the application, as amended, is respectfully requested.

I. REJECTION OF CLAIMS 12-20 UNDER 35 USC §112, 2nd ¶

Claims 12-20 stand rejected under 35 USC §112, second paragraph, as being indefinite. Withdrawal of the rejection is respectfully requested based on the following.

The Examiner indicates it is not clear in claim 12, line 7, what is meant by the feature "same coil". Specifically, claim 12 refers to the inductive interface as including "a same coil which serves to transfer power and data". The Examiner asks whether "same coil" means one coil or a single coil, or does it refer to some technical term known in the art.

Applicants hereby state to make it clear on the record that "a same coil" simply refers to the coil which serves to transfer power is the same coil which serves to transfer data. Applicants respectfully submit that such meaning is very clear and definite not only alone, but as used in the specification itself. For example, the specification refers to the setter system being able to transfer power and data using the same coil 32. (See, e.g., Spec., p. 12, Ins. 6-7 and 19-20).

In view of the above, applicants respectfully submit that claim 12 is clear and definite. Withdrawal of the rejection is respectfully requested.¹

II. REJECTION OF CLAIMS 12 AND 13-17 UNDER 35 USC §103(a)

Claims 12 and 13-17 stand rejected under 35 USC §103(a) based on *Kollman et al.* Applicants respectfully traverse this rejection for at least the following reasons.

¹Applicants prefer not to amend claim 12 as they do not believe it is necessary for the above reasons. However, applicants are willing if the Examiner still feels it is necessary even in view of the above.

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Claim 12 defines a projectile including an inductive interface that permits transfer of power and data between a target system and an external setter system. As noted above, the inductive interface includes a same coil which serves to transfer power and data.

The Examiner admits that *Kollman et al.* does not disclose a coil for transferring power being the same coil for transferring data as recited in claim 12. Nevertheless, the Examiner argues that it would have been obvious to one having ordinary skill in the art to integrate the power coil 106 and data coil 112 so as to comprise a single coil performing dual roles. (O.A., p. 4). In support of such position and presumably representing the requisite motivation, the Examiner refers to *In re Karlson*, 136 USPQ 184, stating that it has been held that omission of an element and its function in a combination where the remaining elements perform the same functions as before involves only routine skill in the art.

Applicants respectfully submit that the Examiner has misinterpreted the holding in *In re Karlson*. In fact, the holding in *In re Karlson* supports the applicants' position. Specifically, *In re Karlson* recites:

It is, of course, apparent that the elimination of the Shuldener screen and filler tube eliminates the functions of those elements. It is well settled, however, that omission of an element and its function in a combination is an obvious expedient if the remaining elements perform the same functions as before. In re Nelson, 95 USPQ 82; In re Eliot, 25 USPQ 111.

We believe the record clearly supports the conclusion of the board that no change in the functions of the remaining elements would result from the omission of the screen and filler tubes. (In re Karlson, 136 USPQ 184, 186 (1963) [Emphasis Added].

Assuming, for sake of argument, that the holding of *In re Karlson* was applied to *Kollman et al.*, the result argued by the Examiner is simply incorrect. As the Examiner admits, *Kollman et al.* teaches a power coil 106 for transferring power, and a data coil 112 for transferring data. Suppose, for example, the issue was the removal of the data coil 112 for transferring data in *Kollman et al.* *In re Karlson* suggests that the omission of the data coil 112 and its function of transferring data is an obvious expedient if the

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remaining power coil 106 for transferring power performs it's same functions as before (i.e., "no change in the functions of the remaining elements would result).

Applicants in claim 12 are not claiming an interface which simply includes a power coil for transferring power. Rather, claim 12 recites a coil which *transfers both power and data*. Thus, the remaining "power coil" in accordance with the present invention does not perform it's same function as before (i.e., transferring power). Instead, applicants have developed a suitable system in which the remaining "power coil" functions differently since the omission of the "data coil" and its function of transferring data. Namely, the "power coil" functions now to transfer power and data. *Kollman et al.* does not teach or suggest how the same coil can serve to transfer both power and data.

The above can be represented graphically in a table as follows:

Before	After (removal of data coil)	<i>In re Karlson</i> Result
power coil for transferring power; data coil for transferring data	power coil for transferring power	Obvious
power coil for transferring power; data coil for transferring data	power coil for transferring power and data	Non-Obvious

Accordingly, the Examiner's purported motivation for modifying the teachings of *Kollman et al.* does not exist. *In re Karlson* simply does not support the Examiner's position.

The bottom line is there is no teaching or suggestion for modifying the teachings of *Kollman et al.* so as to result in the invention recited in claim 12. The Examiner has not set forth even a *prima facie* basis for an obviousness rejection. Applicants respectfully request withdrawal of the rejection of claim 12.

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Regarding claims 13-17, the Examiner contends that Official Notice makes the claimed waveforms obvious. Applicants respectfully challenge such assertion. For the reasons described above, *Kollman et al.* does not even teach or suggest the same coil serving to transfer power and data. How can it be said that it is Official Notice to provide the type of waveforms recited in claims 13-17 to transfer both power and data thru the same coil, when no such coil for receiving such waveforms exists or is even obvious in *Kollman et al.*?

Claim 13 specifically recites a voltage waveform induced across the same coil comprises an idle waveform portion comprising energy for powering the target system, and a data waveform portion representing data sent to the target system. The Examiner simply concludes that under Official Notice, it would have been obvious to "select appropriate voltage waveforms". Applicants respectfully submit that it's not even obvious to have a single coil in *Kollman et al.*, let alone a voltage waveform across such coil in the manner recited in claim 13. The same argument applies with respect to the waveforms of claims 14-17. Applicants respectfully request a showing of such Official Notice, or withdrawal of the rejection.

For at least the above reasons, withdrawal of the rejection of claims 12-17 is respectfully requested.

III. REJECTION OF CLAIMS 1-3, 8-11 AND 18 UNDER 35 USC §103(a)

Claims 1-3, 8-11 and 18 stand rejected under 35 USC §103(a) based on *Kollman et al.* in view of *Stratton*. Applicants respectfully traverse this rejection for at least the following reasons.

Claim 1 defines a projectile having an inductive interface that includes a magnetic core and a coil wrapped around the magnetic core. Specifically, claim 1 recites that the magnetic core is comprised of a compound of ferrite material and non-ferrite material. Claim 2 recites that the ferrite material content is in the range of about 50% to about 90% by weight. Claim 3 recites that the ferrite material is in the range of

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about 70% to about 80% by weight. Claim 8 recites that the magnetic core is formed of an extruded material. Claim 9 recites the core having a hollow conical shape.

The Examiner relies on *Kollman et al.* as teaching that the magnetic core can be made of powdered iron or steel, or any material used in transformers. The Examiner then goes on to rely on *Stratton* as teaching that the magnetic core of inductors may comprise manganese-zinc ferrite. The Examiner states that *Stratton* teaches "a magnetic core of inductors may comprise manganese-zinc ferrite having a loss component of magnetic permeability at frequencies above the designed operating frequency". (O.A., p. 5).

However, applicants note that they are not claiming to be the first to use manganese-zinc ferrite as a magnetic core. Applicants are claiming using a *compound* of ferrite material, such as manganese-zinc ferrite, and non-ferrite material. As is discussed in the present application, ferrite core material is typically very brittle, not easily machinable, and subject to cracking and/or otherwise losing its structural integrity during handling and/or use of the projectile. (See, e.g., Spec., p. 1, Ins. 30-34).

The present invention overcomes such shortcomings by providing a magnetic core made up of a compound of ferrite material and non-ferrite material. Claims 2-3 recite desired ratios. Claims 8 and 9 recites desired machining properties. The present invention allows the magnetic core to be lighter, more machinable, etc., compared to conventional ferrite cores.

Stratton teaches utilizing a conventional ferrite core made of manganese-zinc or nickel-zinc ferrite. (Col. 7, Ins. 1-5). *Stratton* does not teach or suggest a magnetic core made up of a compound of ferrite material and non-ferrite material as recited in claim 1. *Stratton* simply teaches a magnetic core of manganese-zinc or nickel-zinc ferrite. Thus, the magnetic core in *Stratton* is going to be subject to the same shortcomings the present invention seeks to avoid. Applicants note that while *Stratton* refers to a loss component of the magnetic permeability at frequencies above the designed operating frequency, this does not in any way suggest *Stratton* is teaching to

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include a lossy, non-ferrite material in addition to the ferrite material as part of a compound.

Regarding claims 2 and 3, certainly the suggested ranges do not represent obvious optimum or workable ranges as suggested by the Examiner. For the reasons stated above, *Stratton* does not even teach a compound of ferrite material and non-ferrite material. Therefore, there is nothing upon which to base a conclusion of obvious optimum or workable ranges.

Regarding claims 8 and 9, neither *Kollman et al.* nor *Stratton* teach an extrudable or easily shaped conical magnetic core compound. Thus, while extrusion and conical shapes may be well known general machine principals, Official Notice does not suggest it would have been obvious with hard, brittle conventional ferrite materials as taught in *Stratton*.

Regarding claim 18, the same arguments set forth above with respect to claim 1 equally apply.

For at least the above reasons, applicants respectfully request withdrawal of the rejection.

IV. REJECTION OF CLAIMS 4, 5, 7, 19 AND 20 UNDER 35 USC §103(a)

Claims 4, 5, 7 and 19 stand rejected under 35 USC §103(a) based on *Kollman et al.* in view of *Stratton*, and further in view of *Friedrich et al.* Applicants respectfully traverse this rejection for at least the following reasons.

Claims 4, 5, 7 and 19 relate to the feature of the magnetic core comprising a plastic material impregnated with ferrite material. The Examiner admits that neither *Kollman et al.* nor *Stratton* teach such feature. However, the Examiner argues that *Friedrich et al.* discloses that it is well known to embed the constituent materials of the magnetic core of an inductive interface in a plastics material. (Citing Col. 2, Ins. 15-24).

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Applicants respectfully point out that the undersigned is not able to read German as set forth in *Friedrich et al.* Based on the English abstract provided with the reference, *Friedrich et al.* teaches a ring shaped permanent magnet 5. The English abstract does not teach or suggest embedded constituent materials in a plastic magnetic core as suggested by the Examiner.

Accordingly, to the extent the Examiner still feels *Friedrich et al.* teaches a plastic material impregnated with ferrite material in a manner relevant to claims 4, 5, 7 and/or 19, applicants respectfully request that the Examiner provide an English translation of the teachings of *Friedrich et al.* While applicant certainly requires a translation of the portions relied upon by the Examiner, applicants would prefer a complete translation so that the teachings of the reference may be referred to as a whole.

Absent a translation of the portions relied upon by the Examiner, applicants are unable to respond with any more detail other than *Friedrich et al.* has not been shown to teach or suggest the features of claims 4, 5, 7 and 19. Withdrawal of the rejection is respectfully requested.

V. CONCLUSION

Accordingly, all claims 1-5 and 7-20 are believed to be allowable and the application is believed to be in condition for allowance. A prompt action to such end is earnestly solicited.


Should the Examiner feel that a telephone interview would be helpful to facilitate favorable prosecution of the above-identified application, the Examiner is invited to contact the undersigned at the telephone number provided below.

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Should a petition for an extension of time be necessary for the timely reply to the outstanding Office Action (or if such a petition has been made and an additional extension is necessary), petition is hereby made and the Commissioner is authorized to charge any fees (including additional claim fees) to Deposit Account No. 18-0988.

Respectfully submitted,

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